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Nuclear strategy and the problem of command and control

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In recent years the subject of command, control, communications and intelligence (C³I) has been given a great deal of attention by strategic thinkers. Traditionally, C³I was treated as primarily a technical-engineering challenge, an operational problem of maintaining secure channels with which to transmit and receive orders, collect data on the enemy, and otherwise manage a war. In the 1970s and early 1980s numerous weaknesses in the command-and-control network essential for the prevention, conduct and termination of nuclear war were highlighted by both academic as well as governmental observers. Concern centred around technical questions such as the ability of vital communications systems to survive the varied effects of nuclear detonations including blast, radiation and electromagnetic pulse. At the same time, there arose a growing fear that US preparations for responding to a surprise attack were inadequate. Proposed remedies to these and related problems thus focused on engineering solutions, for instance hardening of communications lines, new techniques for communicating with submerged submarines, and so forth.

Although all these technical worries linger, what distinguishes some of the more recent theoretical works on nuclear strategy is the conclusion by a number of strategic thinkers that command-and-control issues play an integral role in the stability of the strategic balance. They have highlighted the dangers arising from vulnerable C³I systems, the most important of which is that it might be possible to 'decapitate' an opponent's command structure from the military forces it controls. In such an event, the strategic forces of the super-powers would be rendered inert by the very safety measures implemented in peacetime to protect against unauthorized or accidental release of weapons. Commanders would be left awaiting positive orders and corresponding authentication codes from the National Command Authority that would never arrive. Command vulnerability, then, might offer the chance of an attacker escaping with little or no retaliatory damage.

This potential for decapitation would tend to weaken the doctrine of Mutual Assured Destruction (MAD) by putting a cloud of doubt around the

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prospect of 'assured destruction'. Such a gap in the system of deterrence, if it exists, would clearly be of profound importance. In fact, some recent studies have claimed that the nuclear stand-off has for many years been suffering from this very flaw, and have urged that various technical improvements be made to remedy it. According to Bruce Blair and John Steinbruner, US command vulnerability has always left America vulnerable to a decapitating first strike, no matter what the conventional yardsticks of the military balance seemed to indicate. More importantly, they have argued that, under certain conditions, command vulnerability might create an *incentive* for the Soviet Union to strike first or for the United States, realizing the precarious state of its command structure, to launch a pre-emptive strike of its own during a tense crisis, rather than awaiting a Soviet command centre attack which might well paralyse US retaliation. If command vulnerability can influence the strategic balance in such fundamental ways, it would rank as the most important aspect of nuclear strategy.

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These recent studies provide an opportunity to analyse the internal reasoning, consistency and conclusions of their theoretical strategic arguments, and to compare and contrast these with other studies. Most importantly, US government documents from the period 1956-62 have recently been declassified so that historical evidence can be applied to the strategic theory and lessons can be drawn about how the theory actually worked in practice. In place of the speculation that often characterizes these issues, this article will look to history as a guide to how the command-and-control problem actually influenced policy-making and strategic stability.

Command vulnerability in strategic theory

SURPRISE ATTACK AND NUCLEAR DECAPITATION

In fact, a number of thinkers have argued that command vulnerability was, and continues to be, a major source of instability in the nuclear balance. The conventional yardsticks of the nuclear balance are, therefore inadequate for accurately determining the reliability of US strategic retaliatory forces. Even if a substantial percentage of missiles and bombers physically survived a surprise attack, this does not necessarily mean that they could actually serve any meaningful role in a response. Instead, a surprise attack is likely, especially if characterized by the targeting of enemy C³I centres, to result in a dead leadership and paralysed nuclear force incapable of executing any kind of coherent retaliation. This scenario has become known in the jargon as 'nuclear decapitation', and, according to some, the United States (despite a massive nuclear force) has been particularly vulnerable to just such a strike.

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John Steinbruner has best summarized this view:

None of the popular measures of relative US and Soviet strategic capability - delivery vehicles, warheads, equivalent megatonnage, lethal area coverage, hard target potential, or post-attack force balances -

takes command performance into account, even though it is undeniably a critical element of actual capability . . . residual strategic forces . . . have very limited value because they cannot be coherently directed.¹

More importantly,

Since only modest numbers of weapons are required to threaten the US command system, increases beyond that level have little effect. US strategic forces have always been seriously vulnerable to an initial attack.²

Other theorists have reached similar conclusions. For example, Bruce Blair has stated that 'the fact remains that US command vulnerability and little else was responsible for creating a situation in which Soviet nuclear attack would have been a rational act, albeit an act of last resort'.³

Such claims are lent credence by studies highlighting the technical deficiencies in not only the US command-and-control 'infrastructure', but also in the related contingency planning for a surprise attack. First, the routine stationing of Soviet submarines in the western Atlantic makes it likely that, in a surprise attack, the President would have scarcely nine minutes of warning time to get from the White House (assuming he was there at the time) to his E-4 National Emergency Airborne Command Post (NEACP) stationed at Andrews Air Force Base.⁴ Therefore the prospect exists of one nuclear detonation over Washington resulting in the death of not only the President, but also of all his constitutionally specified successors. Who would then have the legal authority, let alone the practical capability, to order retaliation, is an open question. There are also great uncertainties concerning the survivability and utility of the NEACP or the Strategic Air Command's 'Looking Glass' aircraft, even assuming that they could get airborne. These include: the effects of electromagnetic pulse in blinding the systems, the vulnerability of communications satellites, the difficulty of reliably communicating with submerged sub-marines, as well as other problems.⁵

In fact, a general consensus exists on these technical issues. The Reagan Administration has acknowledged these problems and has undertaken a major C³ modernization programme. Some critical questions remain, however. Namely, what role do command-and-control weaknesses play in the strategic balance and do they have a profound effect on deterrence and stability? In other words, what strategic significance does command vulnerability have, if any?

THE STRATEGIC SIGNIFICANCE OF C³ VULNERABILITY

In addition to exposing the critical technical and procedural weaknesses in the US command system, this school of thought has, in fact, claimed that command vulnerability is a profoundly destabilizing factor in the strategic balance, and is therefore of enormous strategic significance.

Steinbruner, for example has stated that command vulnerability makes 'the concept of stability . . . subject to the most fundamental doubt. . . .'⁶

Also, 'this factor translates into a very strong incentive to initiate offensive operations before damage occurs in order to ensure both the timing and the coverage of targets necessary to achieve military objectives. . . . Thus the two opposing strategic forces appear to impose on each other powerful incentives for pre-emption as the most promising means of conducting nuclear war.'⁷

Blair has reached even more extreme conclusions. He writes that 'the creaky state of our command system offers Soviet leaders potentially great rewards for prompt action'.⁸ The vulnerability of C³ also created 'powerful incentives to strike first or to launch on warning'.⁹ He concludes that:

Deficiencies in command performances could be cause for serious concern regardless of the resilience of the forces and the strategy to which they are subordinated. If command and control fail, nothing else matters . . . the Soviet Union has actually posed a severe threat to US retaliatory capabilities since the mid-1960s. In all likelihood Soviet strikes against C³I systems would have severely impaired and possibly blocked US retaliation . . . the ability of Soviet forces to deliver a crippling blow to US C³I systems long ago created strong incentives on both sides for launching a first strike or for launching a US second strike on warning, incentives that have undermined crisis stability.¹⁰

Clearly, if these conclusions are correct, then command vulnerability does indeed become the critical factor in the strategic balance. It also means that as long as the US C³I system remains vulnerable to decapitation or degradation, the US is in danger of bringing on a Soviet first strike or of creating irreversible momentum in crisis for a launch on warning or even a first strike of its own.

THE ROLE OF DEVOLUTION AND DELEGATION

Is it correct that command vulnerability has a profound influence on the system of deterrence and on strategic stability? To answer this question, it is first important to recognize that the significance of command vulnerability turns on the issue of devolution and delegation of nuclear use authority.

A major complication of the thesis that command-and-control vulnerability is a serious strategic problem lies in the fact that the potential for 'nuclear decapitation' may be mitigated by the process of 'devolution of authority' - the intentional or *ad hoc* delegation of nuclear release authority to subordinate commanders.

The inherent danger for an attacker is that the military units isolated by an assault on the command centre will not, after all, become the equivalent of 'dead limbs'. The reason for this is that a prospective attacker has to face the possibility that, after a decapitation strike, (1) silo officers, submarine commanders and other subordinates who have the physical ability to launch nuclear weapons will eventually do so on their own initiative, thus confronting the attacker with a nuclear response that had apparently gone out of control and which seemingly knew no limits or restraints; or, (2) that

arrangements had been made in which subordinate commanders were delegated authority to launch their weapons under certain wartime conditions such as, for example, a communications blackout. Such a process could result in what might be called 'chaotic response', an uncoordinated, unsystematic and essentially random nuclear retaliation carried out by far-flung forces with little or no co-operation with each other and no official authority directing them. Since such a 'chaotic response' could be just as unpleasant a prospect (if not more so) as a 'controlled' or carefully planned nuclear retaliation, it follows that if arrangements for devolution are made in peacetime, the anticipated decisiveness and therefore attractiveness of a decapitation strike would be drastically reduced.

The possibility of either a 'chaotic response' or of devolution of authority is clearly capable of acting as a strong deterrent *prima facie*, and is thus critical to determining whether command vulnerability really has a destabilizing and dangerous influence on the nuclear balance.

In fact, the implications of devolution have been emphasized by some as an extremely powerful aspect of deterrence, and one that overcomes any technical or procedural weaknesses in the C³ system.

In his study, Yale professor Paul Bracken concluded that 'it seems that the formal existence of predelegated authority to use nuclear weapons in certain emergency conditions protected the command system . . . from decapitating attacks. . . . A Soviet attack on the presidential command center would then be an attack on the safety catch of the entire command structure, and the Soviets would be destroying the one mechanism holding back all-out retaliation.'¹¹ Furthermore, a Soviet attack on the command centre would 'induce a spread of nuclear use authority, and would induce it downward in the organization. Here, the Soviets would face a nuclear war system that apparently was going berserk, with which it might be impossible to negotiate a cease-fire agreement.'¹² This raises the possibility that a nuclear retaliation directed by central authorities is not necessarily more frightening a prospect for the attacker. It may well be, as Bracken implies, that a retaliation carried out by disparate forces with no direction could be a far more frightening prospect in that it may not know restraints, respect traditional thresholds or be likely to surrender. In this way 'chaotic response' might be far more undesirable, from the perspective of the attacker, than a reprisal conducted under the full direction and control of central authorities.

This line of thought can be traced back some years. As early as 1965, Herman Kahn claimed that 'there has been a systematic overestimation of the importance of the so-called "fog of war" - the inevitable . . . misinformation, disorganization, or even breakdown of organized units . . . one of the greatest misconceptions current in discussions of command and control is a failure to understand how well a central war might be run, at least initially, by "dead reckoning".'¹³ Furthermore, a nuclear war without central direction is likely to be characterized by uncontrollable mayhem. Kahn calls this type of warfare 'spasm war' which, he writes, 'does not necessarily denote blind, overwhelming fury, but might only mean that a

response is automatic, unthinking and uncontrolled - a function of the central nervous system, so to speak, rather than of the brain'.¹⁴

Another fundamental challenge to the assumptions underlying the notion that command vulnerability creates a momentum and incentive to strike first is offered by Klaus Knorr:

Since a pre-emptive counterforce attack cannot knock out the other side's retaliatory capabilities enough to preclude enormous devastation in return, the chance to win rests on the uncertain hope that a large-scale attack, including destruction of an opponent's C³I system, will render him unable or unwilling to retaliate. How can some incalculable chance of such an outcome justify accepting the risk of national annihilation even if one leaves out of account the possible effects of nuclear winter, that, caused by massive nuclear explosions could by itself inflict catastrophe on the nuclear powers?¹⁵

Moreover, Knorr reasons that unless a command centre attack is completely paralyzing, 'it could release spasms of response apt to bring on doomsday levels of destruction'.¹⁶

This type of logic goes to the heart of the assumptions underlying the thesis that command vulnerability undermines deterrence. Indeed, if the reasoning behind the potential effects of 'chaotic response' and devolution are true, it would appear unlikely that command vulnerability could be a prime destabilizing factor. But - effort in D-2 opportunity?

The possibilities inherent in devolution clearly run counter to the notion that command vulnerability threatens deterrence. Therefore, it is particularly surprising to find that the deterrent effects of both devolution of authority and of chaotic response have even been acknowledged in the studies claiming that command vulnerability is destabilizing. In fact, in many instances the statements made by the proponents of this view seem to contradict their very conclusions. For example, Steinbruner says that:

We can be reasonably sure that in order to prevent high risk of a disarming first strike the American forces do have the capacity to conduct strategic war without the president. But in addition we can reasonably doubt whether the conditions under which this would be permitted to happen have been clearly and extensively defined.¹⁷

However, he later concedes that a first strike on the US C³ centres would 'lead in all probability to unpredictable and unco-ordinated retaliation by US force elements. . . . Deterrence is not threatened . . . as long as the probability of reasonably destructive response remains high - as it certainly is'.¹⁸

It is also puzzling that Steinbruner himself admits that 'nuclear war would be uncontrollable, as a practical matter, shortly after the first tens of weapons are launched',¹⁹ and that the absence of central control would likely result in 'the collapse of US forces into isolated units undertaking retaliation on their own initiative against a wide variety of targets at unpredictable moments over a period of time that might last from several

days to several weeks'.²⁰ This prospect can hardly be considered enticing to the Soviet Union.

Nevertheless, Blair heightens the importance of a fully co-ordinated and controlled nuclear response when he writes that 'although extensive predelegation of basic authority . . . would ensure retaliation, it would not ensure systematic coverage of the enemy target base. The level of destruction visited upon the Soviet Union could be immense, but certain classes of targets might escape damage altogether'.²¹

In light of the likely results inherent in 'chaotic response' and devolution (even by Blair and Steinbruner's own admission), it is unclear why such an ideally executed reprisal is necessary for deterrence to be maintained. In other words, why should the Soviet Union consider national annihilation through unco-ordinated or 'unsystematic' destruction to be so much more desirable than national annihilation through a fully-orchestrated response?

The efficacy (or perceived efficacy) of a nuclear system without centralized C³ is clearly the key determinant of whether command vulnerability makes any meaningful strategic difference. Who is right depends upon whether a decapitated nuclear system is capable of causing enough damage through 'spasmodic' release of weapons, or if predelegation of authority facilitates a co-ordinated enough response to deter a first-strike by insuring an intolerably destructive retaliation. Under those circumstances, a first strike would be as irrational an act, if not more so, as it would be in a world with no command vulnerability. Recall Blair's admission that even a fragmented and unco-ordinated US reprisal could still inflict 'immense' destruction on the Soviet Union. As long as this is the case, it is hard to see (theoretically, at least) how command system vulnerability can create any special incentive to strike first.²² Ironically, this conclusion is reinforced by the very proponents of the thesis that command vulnerability is destabilizing.

C³ VULNERABILITY AND CRISIS STABILITY

In addition, the theorists of command vulnerability reach another key conclusion: that these vulnerabilities will have a particularly destabilizing effect during a time of crisis or tension.

Steinbruner fears that devolution's deterrent effect will wane under conditions in which the Soviet leadership is convinced that nuclear war is imminent and unavoidable: 'a pre-emptive attack on the US command structure is a rational defensive act for the Soviets once they have judged that nuclear war can no longer be avoided'.²³ Moreover, under such conditions, the Soviet Union 'would be *strongly motivated* to initiate a command structure attack. . . .'²⁴ This is so, he reasons, because a pre-emptive C³ attack would offer some small chance of escaping with little or no damage, and because it 'precludes' the magnitude of destruction that would come from a fully co-ordinated US reprisal.

As shown earlier, Blair claims that command vulnerability had 'undermined crisis stability'. The symptom of that instability would be growing 'pressures to release the forces . . . as hope for a diplomatic

resolution of the crisis waned'.²⁵ Also, command vulnerability 'represented a potential catalyst for intentional escalation on the part of both sides, given the powerful incentive to strike first'.²⁶

For the purposes of deterring a nuclear first-strike, however, times of crisis differ from those of peace in that such an attack will no longer be tantamount to a 'bolt from the blue', in that it may be unexpected but is no longer a *surprise* in the traditional sense.

A number of characteristics of crisis situations make this so. First, and most fundamentally, perceptions of the strategic situation change in that tensions arise and it is therefore more likely that escalation or pre-emption will occur. Richard K. Betts states succinctly that, 'When danger of nuclear attack was growing, however, danger of nuclear *surprise* would have receded'.²⁷ Secondly, in order to guard against the perceived greater possibility of pre-emptive attack, the contesting nations are likely to put some or all of their nuclear forces on alert status. These steps have important consequences for they act to reduce any premium on surprise that might have existed in peacetime. As Bracken has put it, 'The deeper into the unusual conditions of a high alert . . . the more likely ambiguous command is to gain importance. . . . An attack on the *alerted* American command structure would then do more than destroy the safety catch holding back retaliation. It would turn over authority to perhaps dozens of lower-ranking officers'.²⁸ Presumably, this prospect would do much to deter a Soviet pre-emptive attack.

Again, even Steinbruner has acknowledged that 'operation procedures . . . provide for increasing the responsiveness of the forces and for expanding their geographic dispersion under crisis conditions. . . . This has the clear effect of reducing overall force vulnerability and perhaps a much more speculative effect of bolstering deterrence by making the threat of retaliation more imminent. . . .'²⁹ Each side's armed forces would become aware of the existence of tension, and surviving subordinates would seemingly be better prepared to conduct operations by 'dead reckoning' than if they had been caught completely by surprise.

Clearly, the various preparatory actions which characterize crisis conditions tend to undermine a key assumption of the thesis that command vulnerability is destabilizing. Recall that command vulnerability was claimed to be an especially enticing weakness when the Soviet Union was convinced that all-out war was inevitable and/or that a pre-emptive attack by the United States was imminent. Obviously, however, this kind of scenario is likely to occur only in a tense and probably prolonged crisis. Even Blair admits this: 'An attack on [the] US command structure would thus be a gamble. Given the stakes, rational leaders would have exhausted all diplomatic means of crisis resolution and finally abandoned all hope for staving off general war before they would have resorted to [such an] attack'.³⁰ But numerous steps can be taken that would certainly ensure that any potential advantage of a first strike would be severely mitigated. By the time the Soviet Union had reached the requisite conclusions (for prompting a first strike), the US would have increased the readiness of its

the probability of a Soviet surprise attack. As Betts has argued (alerts) would bolster deterrence by demonstrating the seriousness of US intent and the readiness to wage war'.³¹

Therefore, based on an analysis of the deterrent effects of devolution, command vulnerability is not necessarily destabilizing in peacetime, and need not even gain special importance (in terms of providing an incentive to strike first) during crisis. The logic of devolution, as argued by numerous strategists, reveals some serious weaknesses in the assumption that command vulnerability has great strategic significance. But does the actual history of US policy on delegation and devolution confirm these conclusions? How have American decision-makers actually confronted the issues of command vulnerability and devolution of authority and what does the historical evidence imply about strategic theory? Was the possibility of decapitation considered and were adequate provisions made to ensure either the survivability of the command system or to provide for devolution of authority? Have US strategic forces 'always been vulnerable to an initial attack' as Steinbruner has argued? And, most importantly, did this vulnerability create an incentive for one side to strike first, whether in peacetime or in a crisis?

US policy on command and control, 1956-62

The issue of pre-delegation can be traced back to the early 1950s when custody of atomic weapons still resided with the Atomic Energy Commission (AEC). The AEC maintained such control primarily in the interest of security and safety and in the spirit of civilian control over the military. However, there was a growing fear within the military that tight control by the AEC and other problems were exposing the United States to a growing danger of surprise attack.³² The Eisenhower Administration took action to rectify this weakness. As early as 1954, President Eisenhower signed directives calling for the dispersion of nuclear weapons within the United States and overseas. In addition, custody of atomic weapons would be transferred to the Department of Defense 'in accordance with mutually acceptable arrangements between the AEC and DoD. . .'.³³ The return of custody would be as directed by the President. By 1956, Eisenhower signed a directive governing transfer of weapons custody under three specific circumstances, 'Peacetime - Normal', 'Peacetime - Urgent Transfer Action Required', and 'Defense Emergency'.³⁴ The directive specified that the President would have to approve all transfer requests in both of the 'peacetime' conditions but that the 'commander of a command established by the Joint Chiefs of Staff would have the authorization to obtain immediate release in the event of a defence emergency'.³⁵ Foreshadowing a debate during the late 1950s over the authority actually to use nuclear weapons, Eisenhower cautioned that, even in a defence emergency, 'the transfer of custody in no way means or implies authorization to use atomic weapons'.³⁶ Presumably this concern

On 22 May 1957, President Eisenhower signed an 'Authorization for the Expenditure of Nuclear Weapons'. This order directed that 'implementing instructions' be prepared by the Departments of Defense and State, and then submitted to the President for approval.³⁸ The approval process through which the implementing instructions had to go was very extensive and included reviews by a number of individuals within the two departments as well as in the JCS and the military branches.³⁹

The comments on the proposed implementing instructions which emanated from the service branches stressed the desire of military personnel to have wide latitude in determining how and under what conditions nuclear weapons would be employed.

Writing on behalf of the Commander-in-Chief of the Strategic Air Command, the Air Force's Deputy Director of Plans, L. E. Lyle, recommended that the implementing instructions 'should emphasize the primacy of the judgment of authorized commanders in decisions to resort to expenditure authority . . . They should permit JCS commanders to delegate authorization as low as numbered air force level'.⁴⁰ Even more importantly, it was desired that this delegation not simply include authorization for defensive engagements in local areas, but should 'emphasize the basic defensive nature of attacks against the source of hostile blows . . .' and 'they should be responsive to reaction to enemy surprise missile attack'.⁴¹ The Air Force was particularly liberal when it came to the choice of weaponry at a commander's disposal: 'It is believed that the implementing instructions should unify the authority by making it equally clear that whenever any defensive or retaliatory action must be taken by authorized commanders, nuclear weapons may be used in executing that action'.⁴²

Similar sentiments were echoed by high-ranking Naval officers. Jerauld Wright, the Commander-in-Chief of the Atlantic Fleet (CINCLANT), saw a number of inadequacies in existing rules of engagement pertaining to ships under attack. No provisions had heretofore been made regarding the liberty of naval units to respond to a hostile attack by enemy aircraft and missiles with nuclear weapons (although clearances to employ nuclear air defence weapons had been given to ensure the timely protection of friendly territorial waters).⁴³ Similarly, no clearance was given for the employment of atomic weapons against submarines which either attacked US forces, violated US territorial waters or were believed to be making 'obvious preparations to launch a guided missile attack against the United States'. Therefore, Wright desired (as did the Air Force) that nuclear use authority extend to relatively low-level personnel. It was recommended that the Chief of Naval Operations secure 'automatic release of atomic weapons' to be employed against submarines which are either 'preparing, launching or controlling' missile attacks against the US, and that 'the decision to react must be delegated to those operational commanders in whose trust the command of atomic forces has been placed'.

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All these recommendations reflect the importance attached to delegation and devolution in the theoretical literature. Here military personnel are debating the conditions and scenarios under which nuclear-use authority should devolve. It is important to note that while in some cases the recommendations apparently attempt simply to ensure the survival of individual forces elements that have come under attack, a number of engagements go far beyond what might be needed strictly for 'self defence'. Both the comments of the Air Force and Wright seem to be focused on ensuring general retaliation.

Meanwhile, the Commander-in-Chief Pacific (CINCPAC) desired even more extensive delegation. He requested that implementing instructions permit 'the delegation by CINCPAC, in an emergency, to subordinate unified commanders and Joint Task Force commanders authority to authorize emergency expenditures'.⁴⁴ One proviso, however, was that atomic weapons could only be used in response to an atomic attack. Also, the subordinate commanders who were designated nuclear release authority would be permitted to 'launch strikes without specific approval from higher authority only after the nationality of the enemy has been positively identified and for the purpose of reducing the enemy atomic threat'. However, such defensive strikes could include probable launch platforms and even 'the territory of the nation making the attack'. (Again, these proposed tactical rules of engagement are extremely important for they seem to go beyond what might be necessary to ensure the survival of the individual naval units being attacked.⁴⁵ Also they reveal just how extensive was the kind of authority being considered for operational commanders.) Finally, CINCPAC's recommendations went beyond his own service. He suggested that an atomic attack against US ground forces that was accompanied by the request of the Naval or Air Force atomic support from the numbered Army commander concerned, 'will constitute authority for the numbered fleet or Air Force commander to initiate strikes. . . .'

It is interesting to view the rules of engagement desired by the military in the light of a National Security Council (NSC) study conducted in 1955. This document, 'Study of Possible Hostile Soviet Actions' listed a number of Soviet actions, any one of which 'should be judged in and of itself as clear evidence that Soviet attack upon the continental US is certain or imminent'.⁴⁶ These included:

- (a) Penetration of the continental air control and warning system by Soviet aircraft in a flight pattern indicating attack upon the continental US.
- (b) Introduction into or possession within the US of a complete nuclear weapon. . . .
- (c) Soviet attacks against US territories . . . US armed forces or bases overseas.
- (d) Soviet attack against the countries or territories covered by the NATO agreement.
- (e) Concentration of Soviet submarines in a position and in sufficient numbers to permit offensive attacks on US coastal targets. . . .⁴⁷

The type of authority desired by the military was clearly quite related to some of the actions considered here by the NSC a few years earlier. (Action (e), for example, seems particularly linked to CINCLANT's recommendations on anti-submarine warfare with nuclear weapons.) Putting aside whether or not the actions considered by the NSC can legitimately be seen as *definite* harbingers of full attack, this was the view of some senior civilians and the recommendations of military officers seemed, to some degree at least, to reflect that view. These assumptions were then the general intellectual framework in which delegation policy and provisions for devolution would be made. If certain actions were considered to be the tell-tale signs of surprise attack, then the military sought to ensure retaliation by allowing loose nuclear authority in the relevant types of engagements. The permissive leaning of the discussions on nuclear use authority gives some idea as to how formidable a US 'chaotic response' might have been during this period had anything like the military's recommendations been put into practice.

The internal debate over 'expenditure policy' continued through 1958. At a meeting on 28 March 1958, the Joint Chiefs of Staff discussed the 'apparent need for a clarification of the authority of US commanders with respect to the employment of atomic weapons'.⁴⁸ As a result, a number of changes were sought in the then existing Joint Strategic Capabilities Plans (JSCP). Even the Army Chief-of-Staff saw a need for clarification of the JSCP because it did not place 'sufficient emphasis on the fact that employment of nuclear weapons must be authorized by the President'.⁴⁹ (This statement, if it refers to more than just 'standing orders' and includes emergency contingencies such as those discussed above, would appear to show that by mid-1958, delegation had not been approved in the manner that was requested by the services throughout the previous year.) The Director of the Joint Staff proposed a number of modifications for the JSCP, including the addition of the statement that 'Plans for all military operations will stipulate that atomic weapons will be used only as authorized by the President'.⁵⁰ (Note again that this does not necessarily mean a direct presidential order to employ atomic weapons. That is, provisions and rules for devolution would presumably have also been 'authorized by the President'.) It was also suggested that such changes in the JSCP be circulated relatively widely in the military, and should include 'all commanders who either are in a position of authority to direct the employment of atomic weapons, or possess the actual capability of delivering atomic weapons'.⁵¹ At the same time the JCS modified a memo (JCS 2019/294) on 'Atomic Weapons Employment' to say that atomic weapons are an 'integral part of the arsenal of the Free World' and that there is a need for their 'prompt and selective use when required'.⁵² Apparently no special emphasis was to be placed upon the need for direct presidential authorization.

A sense of the type of loose command attitude that prevailed at high levels of the military during this time (with the apparent tacit consent of the civilian authority as well) can be glimpsed from a reported encounter

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between then SAC commander General Curtis LeMay and Robert Sprague, of the Gaither Committee. Sprague was particularly concerned that the Strategic Air Command was extremely vulnerable to a Soviet first strike. In his estimation, 'If an attack occurred at a time of low international tension when SAC was not in a readiness status, and if there were from two to five hours' warning, the capability to respond would not be at all satisfactory'.⁵³ Sprague did not understand why General LeMay seemed so apathetic to a number of studies highlighting SAC's vulnerability. LeMay is said to have told Sprague that these studies did not concern him because 'If I see that the Russians are amassing their planes for an attack, I'm going to knock the shit out of them before they take off the ground'. When the 'thunderstruck' Sprague protested 'that's not national policy', LeMay allegedly countered, 'It's my policy. That's what I'm going to do'.⁵⁴ u
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Nevertheless, other measures, including the dispersion of weapons and the implementation of a 'Fail Safe' launch policy by SAC were taken at this time to hedge against the potential effects of a surprise attack.

On 1 March 1958, the Commander-in-Chief of the Strategic Air Command (CINCSAC) was granted the authority, in defence emergency conditions, to launch his alert force under the 'Fail Safe' concept (in which the alert force of bombers would be launched with the assurance that it would not proceed to target unless instructed to do so in flight).⁵⁵ Although this procedure required that 'higher authority' had to give permission for actual execution of a mission, it is unclear just who had such power or if it was necessary to go all the way to the President for the 'go-code'.⁵⁶ The then CINCSAC, General Thomas Power, has stated that if he did not get authorization from the 'civilian decision-making machinery', alerted planes would 'fail safe' and return to base.⁵⁷ Again it is not clear who in the government had to be involved and what provisions were made (if any) for scenarios in which the civilian authority was either destroyed or unable to communicate with SAC. Meanwhile, General Power has written that the possibility of 'nuclear decapitation' has long been recognized and that 'adequate provisions have been taken to make certain there will always be someone with proper authority to give the necessary order'.⁵⁸ He has maintained, however, that 'only the President can authorize the expenditure of atomic weapons . . . you would not want to pass down to a lad sitting in a missile silo the responsibility of plunging this country into war'.⁵⁹ 58

Regardless of whatever specific provisions were made in anticipation of possible 'nuclear decapitation' the 'Fail Safe' concept does dramatize US attempts to loosen authority in anticipation of an attack.

American policy on delegation during this period remains ambiguous given the testimonials of other high-ranking military officers of the time. Admiral Gerald E. Miller, former Deputy Director of the Joint Strategic Target Planning Staff, has confirmed that the commander of the North American Air Defense Command (NORAD) had advance authorization to employ defensive nuclear weapons, but considers it unlikely that any additional delegation was made during this period.⁶⁰ (In fact, as early as

1955, a DoD report had urged the President to grant 'advance authority for the instant use of atomic warheads wherever needed over the land areas of the United States and Canada'.⁶¹) General Earle E. Partridge, at the time Commander-in-Chief of NORAD, has said that the 'President has given his approval to use, without reference to anybody, any weapons at our disposal if there is a hostile aircraft in the system'. Asked if he had to contact higher authorities before doing so, Partridge answered, 'No'.⁶²

Also, according to the same interview, the Supreme Commander of Allied Forces in Europe had a contingency plan that allowed him to fire nuclear weapons under certain emergency conditions. And General Lauris Norstad, Supreme Allied Commander in Europe (SACEUR) from 1956-63, stated that although there was no provision for automatic military response on the part of US troops in Europe, 'there was a system which would permit immediate response, but under the authority that came from the proper levels'.⁶³ ? m
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Some statements by US officials even reveal a desire to solve the problem of assuring nuclear response through apparently significant pre-authorization of authority. For instance, in 1959, JCS Chairman Nathan F. Twining wrote that 'atomic operations must be pre-planned for automatic execution to the maximum extent possible and with the minimum reliance on post-H-hour communications'.⁶⁴

More importantly, it has recently been alleged by strategist-turned-radical-activist Daniel Ellsberg, that Presidents Eisenhower, Kennedy and Johnson delegated nuclear-use authority to 'six or seven' high-ranking military commanders.⁶⁵ These officers supposedly included the Pacific commander, CINCSAC and SACEUR. Although such authority was for special circumstances such as a communications blackout, Ellsberg claimed that while he was a DoD consultant in 1961, he learned that such authority filtered down to officers ranking as low as major.

This claim is documented to some degree by the fact that, at least at the outset of the Kennedy Administration, US military policy provided for the use of nuclear weapons by certain subordinate commanders (on their own initiative) if they were faced with a substantial Soviet military action and were unable to contact the President due to 'a failure of communication at either end of the line'.⁶⁶ 30 JAN 61 - was the in brief?

Another indication that provisions were made for retaliation absent the National Command Authority has been highlighted, interestingly enough, by Bruce Blair. The exchange he recounts seems to answer a question often posed, namely, what does a submarine captain do if, during a period of high international tension or war, communications are lost with the NCA? Is the US ballistic missile submarine fleet, which is linked to Washington by tenuous communications links, susceptible to easy decapitation? In a 1963 Congressional hearing Admiral Galantin was asked what would happen if communications with the *Polaris* submarine fleet were cut. Was there 'a point and time under certain circumstances in which the ship commander is authorized to open up?' The Admiral answered, 'Yes sir'.⁶⁷

So it seems that in addition to whatever other conditional devolution policy existed at this time, at least an entire leg of the strategic Triad (nuclear-armed submarines) was presumably (a) invulnerable and (b) prepared to undertake retaliation without explicit orders under certain circumstances. This would certainly tend to indicate that a massive nuclear retaliation would have been likely even in the event of command decapitation.

One of the most recent and most revealing statements along these lines comes from Harold Brown, Secretary of Defense under President Carter. In discussing the possibility of and preparation for nuclear decapitation, Brown writes:

It is inappropriate to go into the details of the arrangements that have been made for such contingencies and thus suggest to the Soviets how to get around those arrangements. But one criterion for such arrangements ought properly to be that a decapitating attack should have the effect of making the response an all-out, unrestrained one.⁶⁸

THE CUBAN MISSILE CRISIS

Given the arguments that C³ weaknesses might serve to prompt an attack *under crisis conditions*, has the US actually undertaken measures (including additional delegation of authority) in order to hedge against the possibility of surprise attack and/or decapitation? Clearly, if significant preparatory actions were taken, the 'incentive' to strike first created by command vulnerability would be diluted, if not eliminated completely.

In 1960 NORAD issued regulations governing the various actions necessary to place US forces in simulated Defense Readiness Conditions (DEFCON). The particular alert gradations, code names and some related operational procedures associated with the DEFCON system have been declassified, but the specific characteristics of each DEFCON have never been disclosed. The standard alert levels and corresponding exercise terms are:

- DEFCON 5 – Fade Out
- DEFCON 4 – Double Take
- DEFCON 3 – Round House
- DEFCON 2 – Fast Pace
- DEFCON 1 – Cocked Pistol⁶⁹

Various documents from DEFCON exercises and actual alert conditions during the Cuban Missile Crisis are cloaked in considerable secrecy as to the actual events (especially any steps pertaining to delegation) which occur upon the assumption of a given alert level. Nevertheless, it seems that US actions during past crises served to act as a hedge against the success of a surprise attack, and mitigated any instability that command vulnerability might have caused.

For example, during a DEFCON 3 exercise on 16 August 1962, the Strategic Air Command undertook the following actions: sabotage alert, reduction in training exercises, increase in the number of operational aircraft, and ability to assume the next DEFCON in a minimum of time.⁷⁰

There is some indication, in addition, that delegation of authority is an institutionalized operational feature of certain DEFCON levels. In referring to the DEFCON 3 alert of 1973, Admiral Gerald Miller has stated that this condition was a relatively minor one and was 'some significant steps away from the conditions under which release or authorization for the use of nuclear weapons would be considered'.⁷¹ Nevertheless, even if authorization for use does not occur until the lowest (most serious) DEFCON levels, this fact would have profound implications for delegation policy. This is because unified and specified commanders had the authority (at least until mid-1960) to establish their own DEFCON level at any time appropriate to the prevailing circumstances.⁷² If the loosening of authority is a specified characteristic of any DEFCON level, then it implies that unified and specified commanders could, effectively, delegate authorization to employ atomic weapons to *themselves*. It is also important to note that the ordering of a given DEFCON level only sets a *minimum* alert standard for operational commanders – they are free to go to higher states of readiness if the situation merits.⁷³ Furthermore, it appears that until 1961, DEFCON levels could be changed without notifying the White House, thereby implying an even greater latitude in alert and possible nuclear use authority on the part of operational commanders.⁷⁴

During the Cuban Missile Crisis, US forces worldwide assumed an alert level of DEFCON 3. SAC moved to an alert status of DEFCON 2, dispersed fully combat-configured B-47 bombers, interceptor aircraft were kept airborne, and, in addition, a host of related operational activities were ordered.⁷⁵ By 23 October 1962, SAC had placed B-52 bombers on airborne alert, bombers were relocated out of Florida and 'approximately one-third of the Air Force's worldwide tactical fighter resources' was placed on one-hour alert status.⁷⁶ Another step of great significance was that Air Defense Control (ADC) was 'placed on DEFCON 3 on 22 October and in less than seven hours 161 interceptors – carrying nuclear armament for the first time in an operational situation – dispersed to 16 bases'.⁷⁷

Moreover, some aspects of US operations during October 1962 do indicate how devolution of authority might have become an aspect of the alert, if only after hostilities had actually broken out. Adam Yarmolinsky's review of DoD operations during the crisis reveals that in the ten days following 6 October, 'preparatory actions were taken that did much to ensure that we were in a balanced posture when the crisis came to a head'.⁷⁸ Along with the manoeuvres and actions mentioned earlier, this included the appraisal of commanders-in-chief around the world of the situation in the Caribbean. On 19 October, overseas commanders were again notified and were 'cautioned that US action might generate Soviet responses in a variety of ways and places'.⁷⁹ So, in addition physically to readying forces for possible action, US crisis activities also served to warn military officers around the world of possible danger and may have led the way for devolution when and if the need arose.

Had there been some sort of Soviet surprise or 'bolt-from-the-blue' attack during October 1962, and had the NCA been decapitated, the Soviet

Union would still have had to be concerned with a large number of officers, many already in the air and armed with nuclear weaponry, with full knowledge that a crisis had been building in recent days and weeks, and the physical ability to launch weapons at their disposal. Under these circumstances, it is hard to imagine how the Soviet Union could really assume that a command centre attack, even if successful, would preclude a devastating reprisal.⁸⁰

Although it is not possible to know with certainty what deterrent effect particular alert steps may have had upon the Soviet Union, the Cuban Missile Crisis offers a glimpse into the way that fear of chaotic response and devolution did actually influence the Kennedy Administration, and how its perception of the USSR's loose command-and-control arrangements played a pivotal role in the unfolding and peaceful resolution of the most important post-war crisis. In this way one can get a sense of how, in general, the prospect of devolution might play a critical role in the decision-making process of either super-power.

One of the factors which greatly influenced the Kennedy Administration's attempt to resolve the crisis was the prospect of the Cuban missiles reaching operational status. It was stressed repeatedly during the crisis meetings that any air strike aimed at destroying the missiles would have to take place prior to their being ready to fire.

From the outset, Secretary of Defense McNamara stated that any military operation against the missile sites must be conducted prior to the time they became operational. He was adamant on this point, saying, 'I think it is extremely important that our talk and our discussion be founded on this premise. . . . Because if they become operational before the air strike, I do not believe we can state we can knock them out before they can be launched. . . .'⁸¹ This fear of launching did not stem from a belief that the Soviet leadership was willing consciously to initiate nuclear war over the Cuban issue. On the contrary, Secretary of State Rusk just 'did not see that possibility', and President Kennedy asked rhetorically why the Soviet Union would allow nuclear war to begin in that 'sort of half-assed way?'⁸²

Rather the fear was that the Soviet Union did not have full technical or even possibly political control over the missiles. It was wondered whether Moscow would be 'either able or willing to prevent Soviet missile commanders from firing on the United States when attacked. . . .'⁸³ As McNamara put it, 'We don't know what kinds of communications the Soviets have with those sites. We don't know what kinds of control they have over the warheads.'⁸⁴

In fact, this fear affected not only US military planning but also threatened some diplomatic initiatives to end the crisis. Talks in the United Nations between Secretary General U Thant and the Soviet and American Ambassadors would not be allowed to go on for weeks, but were to be limited to a very few days because the IRBM sites in Cuba were becoming operational and the IL-28 bombers would soon be ready to fly.⁸⁵

The fears expressed by Kennedy's advisers about the Soviet Union's ambiguous command-and-control arrangements seem to have played a

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powerful role in deterring US military action even in this regional conflict where only relatively few nuclear missiles might have survived an American attack.⁸⁶

In the Cuban Missile Crisis, the theoretical conclusions about command and control seem to have worked in reverse. Specifically, it is ironic that an American belief in a secure and strict Soviet command-and-control system might have been more likely to provoke an attack than the 'enticement' of a vulnerable system. *Will - limited attack at stake.*

Conclusions and implications

The historical evidence has revealed a number of themes that bear on the theoretical discussion of command and control. First of all, it is quite clear that predelegation and devolution of authority were recognized as important issues by US policy-makers as early as the 1950s. Although the exact nature of the policy of delegation remains somewhat ambiguous, the evidence paints a general picture indicating that it played an important role in US planning, and might have acted as a deterrent in the manner developed in theory. The Cuban Missile Crisis provides an example of the powerful deterrent effect that fear of 'chaotic response' can have on a nuclear power, indicating that command vulnerability may not by itself create the kind of premium on surprise that was postulated by some theorists. *yes*

Is command vulnerability acutely destabilizing during crisis situations? American policy in times of alert has included numerous steps to signal resolve and to ensure retaliation in the event of attack, bringing the spectre of 'chaotic response' that much closer to the attacker. Since the command vulnerability problem is said to gain special importance in extreme crisis conditions, these steps serve to illustrate how, once again, the US sought to hedge against the possibility of attack by undertaking steps that were sure to lessen the opportunity for decapitation that command weakness supposedly provides.

Traditionally, command-and-control arrangements have been treated as amongst the most sensitive military information and have, understandably, been shrouded in extreme secrecy. The question is whether the ambiguity that has characterized US policy on command and control has served to weaken the deterrent effect that the threat of devolution might otherwise have. In other words, was the Soviet leadership aware that steps had been taken to ensure retaliation without the National Command Authority? This dilemma has been noted by Betts, who echoes some of the other theorists when he writes:

Ambiguity [in command authority] has some deterrent value, since Kremlin leaders could not assume that effective destruction of the constitutional line of succession would paralyse US retaliation. They would have to reckon either that low-level commanders have secret authority to launch their forces in the event that national command is destroyed or that some isolated commanders would do so even without explicit authority.⁸⁷

However, he concludes that:

This ambiguity . . . is not necessarily preferable to instilling *certainty of retaliation* by openly admitting – without amplification in detail – that release authority has been delegated. . . .⁸⁸

This logic raises questions as to whether the Soviet Union was confident enough of the US retaliatory capability to make a decapitation strike a useless option. It may be that American capabilities may have been communicated in more subtle ways than through the outright 'publicity' that Betts seems to espouse. For example, General David Burchinal, who was Air Force Director of Plans during 1962, has stated that all the alert measures taken during the Cuban Missile Crisis were 'signals the Soviets could see and we knew they could see them . . . we made damn sure they saw it without anybody saying a word about it'.⁸⁹

Also, in the case of the American concern over Soviet command and control in Cuba, it was not necessary for the Soviet Union, as Betts speculated might be the case, openly to declare the tenuous nature of the authority to use nuclear weapons, or that such authority had been delegated: *ambiguity* in authority was apparently sufficient to have a deterring influence on the other side, in this instance the United States.

Finally, a point raised by Ashton Carter in a recent article illustrates how, conceptually, the conflicting notions about command vulnerability are, in some sense, opposite sides of the same coin.⁹⁰ There is first the Blair/Steinbruner assumption that C³ weaknesses might offer the prospect of a quick victory to a pre-emptive attacker, thereby making nuclear war more likely. On the other hand, there is the notion that once even a very few nuclear explosions occur, what was initially a crisis or limited war will necessarily 'explode' into sheer mayhem. For instance, Desmond Ball has claimed that because of C³ vulnerability, 'control of a nuclear exchange would become very difficult to maintain after several tens of strategic nuclear weapons had been used, even where deliberate attacks on command-and-control capabilities were avoided'.⁹¹ Moreover, C³ problems 'suggest that there can really be no possibility of controlling nuclear war'.⁹²

As a result, Ball concludes that 'it is likely that decision-makers would be deterred from initiating nuclear strikes no matter how limited or selective the options available to them'.⁹³ It is interesting to note that Steinbruner seems to hold *both* these positions. He has written that command weaknesses create an incentive to attack because attacking the opponent's command system is 'the target of greatest opportunity and the most likely means of achieving victory'.⁹⁴ But he also believes that 'regardless of the flexibility embodied in individual force components, the precariousness of command channels probably means that nuclear war would be uncontrollable, as a practical matter, shortly after the first tens of weapons are launched. . . .⁹⁵ and that an attack on the command centre would lead to the 'collapse of US forces into isolated units undertaking retaliation on their own initiative against a wide variety of targets at unpredictable

moments over a period of time that might last from several days to several weeks'.⁹⁶

So although Blair, Steinbruner and Ball all agree that C³ systems are inherently vulnerable, their conclusions are radically different. Either C³ vulnerability makes nuclear war a more likely possibility, or it makes nuclear war options unthinkable under any circumstances. The historical evidence suggests that the true implications of command vulnerability lie somewhere between these two extremes.

All this does not suggest that C³ vulnerability is desirable or that improvements are unnecessary. Rather it simply serves to show that its strategic impact is far more problematic and complex than some of the theoretical literature asserts.

Notes

N.B. The publisher of Declassified Documents Collection is Research Publications Inc., Woodbridge, CT. Congressional Hearings are published by the US Government Printing Office.

¹ John Steinbruner, 'Nuclear Decapitation', *Foreign Policy*, Winter 1981/82, p. 21.

² *Ibid.*, p. 22.

³ Bruce Blair, *Strategic Command and Control: Redefining the Nuclear Threat* (Washington DC: The Brookings Institution, 1985), p. 178.

⁴ Desmond Ball, *Can Nuclear War Be Controlled?* Adelphi Paper no. 169 (London: IISS, 1981), p. 14.

⁵ For detailed examples of these difficulties and numerous other technical vulnerabilities inherent in the command system, see Blair, *op. cit.* in note 3; Ball, *ibid.*; and Ashton B. Carter, 'The Command and Control of Nuclear War', *Scientific American*, January 1985, as well as Jonathan B. Tucker, 'Strategic Command and Control: America's Achilles Heel?', *Technology Review*, September–October 1983. Some attempts to improve the command-and-control network are detailed in 'Looking Glass Capabilities Improved', *Aviation Week & Space Technology*, 10 May 1976, p. 52, and in 'Strategic C³: A Goal Unreached', *IEEE Spectrum*, October 1982.

⁶ John Steinbruner, 'National Security and the Concept of Strategic Stability', *Journal of Conflict Resolution*, September 1978, p. 418.

⁷ John Steinbruner, 'Launch Under Attack', *Scientific American*, January 1984, p. 47.

⁸ Blair, *ibid.*, p. 209.

⁹ Blair, *ibid.*, p. 181.

¹⁰ Blair, *op. cit.* in note 3, p. 4. Emphasis added.

¹¹ Paul Bracken, *The Command and Control of Nuclear Forces* (New Haven: Yale University Press, 1983), p. 202.

¹² *Ibid.*, p. 227.

¹³ Herman Kahn, *On Escalation* (Harmon-on-Hudson: The Hudson Institute, 1965), p. 211.

¹⁴ *Ibid.*, p. 194. 'Spasm war' occupies the top (rung 44) of Kahn's famous escalation ladder. It stands above all the forms of 'controlled' nuclear warfare that Kahn envisioned (rungs 21–43) and seems to hold the title of the 'ultimate' form of warfare. (*Ibid.*, p. 39.)

¹⁵ Klaus Knorr, 'Controlling Nuclear War', *International Security*, Spring 1985, p. 90.

¹⁶ *Ibid.*, p. 88.

¹⁷ Steinbruner, *op. cit.* in note 6, p. 419.

¹⁸ *Ibid.*, p. 426n.

¹⁹ *Ibid.*, p. 421.

²⁰ Steinbruner, *op. cit.* in note 1, p. 23.

²¹ Blair, *op. cit.* in note 3, p. 114.

²² The conflicting premises involved in this question bear some relation to the abstract issues raised by Thomas Schelling in his famous essay, 'The Reciprocal Fear of Surprise Attack' (see *The Strategy of Conflict* (Cambridge, MA: Harvard University Press, 1960, p. 207–54)). In that article, Schelling uses the simple model of an armed person confronting an armed burglar who has broken into the former's home, to examine 'the intuitive idea that initial probabilities of surprise attack become larger – may generate a multiplier effect – as a result of each person's compounding fear of what the

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other fears'. In apparent support of Knorr's argument Schelling writes that 'if the gains from even successful surprise are less desired than no war at all, there is no 'fundamental' basis for a [surprise] attack by either side'. On the other hand, there is the danger that Blair and Steinbruner claim, namely, that 'it looks as though a modest temptation on each side to sneak in a first blow – a temptation too small by itself to motivate an attack – might become compounded by a process of interacting expectations, with additional motivation for attack being produced by successive cycles of "He thinks we think he thinks we think . . . he thinks we think he'll attack; so he thinks we shall; so he will; so we must"'. While the game theory and psychological forces that might lead the parties to attack first are no doubt applicable to the nuclear powers, and although Schelling's characters perceive risk in striking first, it is unclear if the adversaries believe there is an extremely high risk that whoever initiates a surprise attack will be 'killed' or 'mortally wounded' in retaliation. But this does seem to be the case in the nuclear stand-off. As Schelling puts it: 'But if both were assured of living long enough to shoot back with unimpaired aim, there would be no advantage in jumping the gun and little reason to fear that the other would try it'.

²⁵ Steinbruner, *op. cit.* in note 1, p. 19.

²⁶ *Ibid.*, p. 27. Emphasis added.

²⁷ Blair, *op. cit.* in note 3, p. 178.

²⁸ *Ibid.*, p. 178.

²⁹ Richard K. Betts, *Surprise Attack: Lessons for Defense Planning* (Washington DC: The Brookings Institution, 1983), p. 236. Emphasis added.

³⁰ Steinbruner, *op. cit.* in note 6, p. 423.

³¹ Blair, *op. cit.* in note 3, p. 178.

³² Betts, *op. cit.* in note 27, p. 252.

³³ See Fred Kaplan, *The Wizards of Armageddon* (New York: Simon and Schuster, 1983), pp. 97–102.

³⁴ Letter, President Eisenhower to Lewis L. Strauss (Chairman, AEC), 1 December 1954, Declassified Documents Collection, 1980, 330A.

³⁵ Letter, President Eisenhower to Charles E. Wilson, Secretary of Defense, 4 April 1956, Declassified Documents Collection, 1980, 330B.

³⁶ *Ibid.*

³⁷ *Ibid.*

³⁷ See, for example, A. J. Goodpaster, 'Memorandum of Conference with the President', 7 November 1957, Declassified Documents Collection, 1979, 331A, and 'Diary, January 23, 1956', Dwight D. Eisenhower, Papers of President of the United States, Declassified Documents Collection, 1977, 358C.

Fear of surprise attack was not universally shared, however. For example, even someone as high-ranking as John Foster Dulles told the President that the possibilities of surprise attack were 'so remote in practice, that I doubted whether we would be justified in going to extremes in the way of cost that alertness would require'. Further, the Soviet ruler would not 'dare to accept the consequences'; John Foster Dulles, 'Memorandum of Conversation with the President', 7 November 1957, Declassified Documents Collection, 1984, 1630.

³⁸ B. L. Austin, 'Memorandum for the Chairman, Joint Chiefs of Staff, Subject: Status of the "Implementing Instructions for the Expenditure of Nuclear Weapons Under Special Circumstances"', CCS 471.6 (8-15-45), Sec. 111, National Archives (JCS).

³⁹ *Ibid.*

⁴⁰ L. E. Lyle, 'Memorandum to Director of Plans USAF, Subject: (Secret) Implementing Instructions for the Expenditure of Nuclear Weapons', 10 August 1957, Declassified Documents Collection, 1980, 272B.

⁴¹ *Ibid.*

⁴² 'Annex, (Secret) Comments on Implementing Instructions for the Expenditure of Nuclear Weapons', Declassified Documents Collection, 1980, 272B.

⁴³ Commander-in-Chief Atlantic (Jerauld Wright), 'Memorandum to Chief of Naval Operations, Subject: Implementing Instructions for the Expenditure of Nuclear Weapons', 5 August 1957, Declassified Documents Collection, 1980, 273A. All additional references to CINCLANT's comments refer to this memo.

⁴⁴ CINCPAC, 'Naval Message No. 4551, to Chief of Naval Operations, Subject: Executive Agency Message (Implementing Instructions for the Expenditure of Nuclear Weapons)', 8 August 1957, Declassified Documents Collection, 1980, 164D. All future references to CINCPAC's comments refer to this memo.

⁴⁵ For example, Paul Bracken has speculated

that it would be wise to delegate nuclear authority to Naval Forces for self-defence purposes. He reasons that, 'if the United States had intelligence . . . that the Soviets were preparing a nuclear salvo at the US fleet, and if it knew there would be only minutes or seconds to react against such an attack, authority might be delegated for self-defensive nuclear firing against Soviet ships and airplanes'. He emphasizes that the authority be for a response that is of a local and defensive nature because, 'Defensive nuclear weapons would also not explode on Soviet territory, so the risk of escalation is less'. (See Paul Bracken, 'Delegation of Nuclear Command Authority', in Ashton B. Carter, John Steinbruner and Charles Zraket (eds), *Managing Nuclear Operations* (Washington DC: The Brookings Institution, 1987), p. 366). Clearly the type of authority sought by top officials in the Navy and Air Force during the 1950s (which sought to strike at the 'source of hostile blows' and within the 'territory of the nation making the attack'), far exceeded purely defensive requirements and offered the prospect of a massive nuclear response to even a localized nuclear attack by the Soviet Union.

⁴⁶ NSC 5515/1, 1 April 1955, 'Study of Possible Hostile Soviet Actions', Declassified Documents Collection, 1984, 1285.

⁴⁷ *Ibid.*, p. 4. On the same page, the reader is cautioned that 'the term "attack" as used in this study refers to offensive action for the purpose of destroying or overwhelming a strategic objective. An "attack" is distinct from a skirmish or armed reconnaissance.'

⁴⁸ Memorandum by the Director, Joint Staff, for the Joint Chiefs of Staff, on 'Authorization for the Employment of Nuclear Weapons', 3 April 1958, CCS 471.6 (8-15-45) Sec. 112, JCS.

⁴⁹ Memorandum by the Chief-of-Staff, US Army, on 'Guidance to Unified and Specified Commanders, in Regard to Queries on the Subject of Atomic Weapons Employment', 25 April 1958, CCS 471.6 (8-15-45) Sec. 113, JCS.

⁵⁰ See Enclosures 'A' and 'B', 'Proposed Change to Joint Strategic Capabilities Plans', in Memorandum by the Director, Joint Staff, *op. cit.* in note 48.

⁵¹ *Ibid.*

⁵² Joint Chiefs of Staff, 'Decision on JCS 2019/310', 26 June 1958, CCS 471.6 (8-15-45) Sec. 116, JCS.

⁵³ Sprague's comments are detailed in A. J. Goodpaster, 'Memorandum of Conference with the President', *op. cit.* in note 37.

⁵⁴ This episode is originally related in Kaplan, *op. cit.* in note 32, p. 133–4. In a recent article, Richard K. Betts writes that, 'Although this is hard to believe, Sprague confirmed the essence of Kaplan's account in a letter to Marc Trachtenberg'. (See 'A Nuclear Golden Age? The Balance Before Parity', *International Security*, Winter 1986–87, p. 20).

⁵⁵ Memorandum by Chief-of-Staff, US Air Force, for the JCS on 'Launching of the Strategic Air Command Alert Force', 10 March 1958, Declassified Documents Collection, 1981, 157B.

⁵⁶ *Ibid.*

⁵⁷ *Department of Defense Appropriations for 1961*, Hearings before the Subcommittee of the Committee on Appropriations, House of Representatives, 86th Congress, 2nd Session, Part 7, p. 70.

⁵⁸ Thomas Power, *Design for Survival* (New York: Coward-McCann, 1964), p. 156.

⁵⁹ *Department of Defense Appropriations for 1961*, *op. cit.* in note 57, p. 69.

⁶⁰ *First Use of Nuclear Weapons: Preserving Responsible Control*, Hearings before the Subcommittee on International Security and Scientific Affairs of the Committee on International Relations, House of Representatives, 94th Congress, 2nd Session, p. 50–51.

⁶¹ See David Alan Rosenberg, 'The Origins of Overkill', *International Security*, Spring 1983, p. 38.

⁶² *US News and World Report*, 6 September 1957.

⁶³ 'Who should Control Nuclear Weapons', *US News and World Report*, 5 October 1964, p. 48.

⁶⁴ JCS 2056/131, 20 August 1959, CCS 3205 Target Systems (17 August 1959), JCS, quoted in Rosenberg, *op. cit.* in note 61, p. 61.

⁶⁵ 'Ellsberg says Army Held A-Bomb Power', *The New York Times*, 4 November 1977, p. 9.

⁶⁶ McGeorge Bundy, 'Memorandum for the President, Subject: Policies previously approved in NSC which need review', 30 January 1961, National Security Files, Meetings and Memoranda Series, Box 313, JFK Library.

⁶⁷ *Department of Defense Appropriations for 1964*, House Hearings, Part 5, p. 817.

quoted in Blair, *op. cit.* in note 3, p. 101. Blair goes on to say that the physical capacity of submarines to launch 'is authoritatively confirmed in testimony given as early as 1960 and as late as 1976'. (See *ibid.*)

⁶⁸ Harold Brown, *Thinking About National Security*, (Boulder, CO: Westview Press, 1983) p. 79.

⁶⁹ NORAD Regulation No. 55-1, 'Simulated Defense Readiness Conditions, Air Defense Warning and Weapons Control Status', CCS 3180, Emergency Readiness Plans (12-Jan-60), JCS.

⁷⁰ Scott Sagan, 'Nuclear Alerts and Crisis Management', *International Security*, Spring 1985, p. 105. However, no information on any additional delegation that might have been ordered as part of the exercise is available.

⁷¹ *First Use of Nuclear Weapons*, *op. cit.* in note 60, p. 50. This statement is somewhat ambiguous. The significance of Miller's testimony obviously hinges on his definition of the terms 'authorization' and 'release'. That is, they may refer to a loosening of authority, or they may simply refer to an outright order that originates with the NCA.

⁷² 'Message from JCS to Commanders-in-Chief, 18 May 1960, CCS 3180 Emergency Readiness Plans (25-Aug-60) Sec. 2. Other evidence is cited in Bruce Blair, 'Alerting in Crisis and Conventional War', in *Managing Nuclear Operations*, *op. cit.* in note 45, p. 116.

⁷³ Sagan, *op. cit.* in note 69, p. 135.

⁷⁴ Earle G. Wheeler, 'Memorandum for the Assistant Secretary of Defense (MP & R), Subject: Revision of JCS Emergency Action File', 31 January 1961, CCS 3180 Emergency Readiness Plans (25-Aug-1960), JCS.

Bruce Blair has also indicated the existence of wide alert authority and has discussed possible provisions for delegation and loosening of nuclear authority at DEFCON 1 and 2. (See Bruce Blair, 'Alerting in Crisis and Conventional War', in Carter, Steinbruner and Zraket (eds), *op. cit.* in note 45, pp. 96-101 and 106-13.)

⁷⁵ Adam Yarmolinsky, 'Memorandum for the Secretaries of the Military Departments, Subject: Department of Defense Operations During the Cuban Missile Crisis', 12 February 1963, National Security File, Box 61, Cuba Testing Tab: OSD and Mil Responses, JFK Library. Also see Sagan, *op. cit.* in note 70, pp. 106-9.

⁷⁶ Yarmolinsky Memo, *ibid.*, p. 10.

⁷⁷ 'The Air Force Response to the Cuban Crisis', office of Air Force History, Bolling Air Force Base, Washington DC, Tab C-1.

⁷⁸ Yarmolinsky Memo, *op. cit.* in note 75, p. 8.

⁷⁹ *Ibid.*, p. 11.

⁸⁰ For a detailed analysis of Soviet actions during the crisis, including their refusal to initiate an alert of their own in response to the American preparations, see Marc Trachtenberg, 'The Influence of Nuclear Weapons in the Cuban Missile Crisis', *International Security*, Summer 1985, pp. 156-61.

⁸¹ Presidential Recordings, Transcripts, Cuban Missile Crisis Meetings, 16 October 1962, first meeting (11:57am-12:57pm), p. 11, President's Office Files, JFK Library.

⁸² Presidential Recordings, Transcripts, Cuban Missile Crisis Meetings, 16 October 1962, Second Meeting (6:30-7:55pm), p. 12, President's Office Files, JFK Library, and *ibid.*, p. 25. Also Marc Trachtenberg, *op. cit.* in note 80, p. 154.

⁸³ Sorensen Memorandum 10/17/62, Box 48, Folder 'Cuba. General. 10/17/62-10/27/62', Sorensen Papers, JFK Library.

⁸⁴ 16 October Transcript, *op. cit.* in note 81, p. 13.

⁸⁵ 'Summary Record of NSC Executive committee Meeting No. 5', 25 October 1962, 5:00pm, National Security Files, JFK Library.

⁸⁶ The role of command-and-control issues in Cuba is also discussed in Trachtenberg, *op. cit.* in note 80, pp. 169-70.

In addition, there are two hints indicating a possible Soviet sensitivity to American concerns over command arrangements with Cuba.

First, just as the US was scrambling to take action before the missiles became operational, there were intelligence reports that the Soviet Union had embarked on a 'crash program to [make the missile sites] reach operational status at the earliest possible date'. (See Yarmolinsky Memo, *op. cit.* in note 74, p. 12.) Also, the CIA reported that, 'detailed analysis of 25 October low-altitude photography confirms the rapid pace of construction of the MRBM and IRBM sites' (CIA Memorandum, 'The Crisis: USSR/ Cuba', 27 October 1962, p. 1-1, Box 316-317, National Security Files, JFK Library). The Soviet leadership was perhaps cognizant of the pivotal role that the 'operational

question' played in US planning and, possibly, hoped to forestall any military action on the part of the US by reaching operational status as early as possible.

Also, in his 24 October conversation with US businessman William Knox, Khrushchev offered some reassurances to the West on the matter of the Cuban missiles: 'He stressed they [the missiles] were under strict Soviet control and would so remain . . . He also stated that he would not be the first to fire a nuclear weapon' (CIA Memorandum, cited above p. III-3). However, if Khrushchev had convinced the West of this he might have served to make an attack more likely, since, as shown, the US did not believe that the USSR was willing deliberately to enter into all-out war over Cuba.

⁸⁷ Betts, *op. cit.* in note 27, p. 252.

⁸⁸ *Ibid.*

⁸⁹ David Detzer, *The Brink: Cuban Missile*

Crisis, 1962 (New York: Thomas Crowell, 1979), p. 164, quoted in Trachtenberg, *op. cit.* in note 80, p. 157.

⁹⁰ See Ashton B. Carter, 'Assessing Command System Vulnerability', in *Managing Nuclear Operations*, *op. cit.* in note 45, p. 606.

⁹¹ Ball, *op. cit.* in note 4, p. 36.

⁹² *Ibid.*

⁹³ *Ibid.*, p. 37. Others have raised parallel points by speculating that C³ vulnerability may act as a targeting threshold during the conduct of a limited nuclear war. See, for example, Kahn, *op. cit.* in note 13, p. 147; and Colin Gray, quoted in Desmond Ball, 'US Strategic Forces: How Would They Be Used?' *International Security*, Winter 1982/83, p. 56.

⁹⁴ Steinbruner, *op. cit.* in note 7, p. 47.

⁹⁵ Steinbruner, *op. cit.* in note 6, p. 421.

⁹⁶ Steinbruner, *op. cit.* in note 1, p. 23.